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AUTHORIAL IDENTITIES IN CHEMISTRY AND LANGUAGE STUDIES: A CORPUS-BASED STUDY OF ENGLISH AND INDONESIAN RESEARCH ARTICLES

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Abstract

In academic writing, first-person pronouns not only replace the author's name but also stand out as significant elements of traditional conventions. Consequently, an ongoing debate exists among scholars regarding the permissibility of specific first-person pronouns in certain disciplines. Despite extensive research both supporting and opposing the permissibility of specific first-person pronouns, more empirical evidence is needed, particularly in the fields of chemistry and language studies. This study examines the usage of first-person plural pronouns in English (we, our, and us) and Indonesian (*kami*, *kita*) and their clusivity in 40 research articles published by *The Modern Language Journal, Nature Chemistry Journal, Litera Journal*, and *Alchemy Journal* in the range 2021 to 2023. This research aims to highlight differences in how authors from diverse disciplines—chemistry and language studies—situate themselves in academic writing. To achieve this, we constructed two specialized corpora: the English Corpus of Language Studies and Chemistry (Encolanche) and the Indonesian Corpus of Language Studies and Chemistry (Indolanche). We utilized Sketch Engine, an online tool facilitating word listing and concordance, for inspection during the research process. A qualitative analysis explored clusivity and the author's identity expressed through each linguistic form. Classification of authorial identities followed a taxonomy proposed by Martín (2003). Our results reveal frequent use of the pronoun *we* in Encolanche, with exclusive clusivity primarily employed to express the author as the experiment conductor. In contrast, Indolanche exhibits infrequent use of personal pronouns.

***Keywords**: authorial identities, corpus-based linguistics, cross-disciplinary, pronouns, research articles*

Abstrak

*Dalam penulisan akademis, kata ganti orang pertama tidak hanya menggantikan nama penulis, tetapi juga menjadi elemen penting dari aturan pada umumnya. Karena penting, perbedaan pendapat muncul di antara para akademisi mengenai kebolehan penggunaan kata ganti orang pertama tertentu dalam disiplin ilmu tertentu. Meskipun penelitian yang mendukung dan menentang kebolehan penggunaan kata ganti orang pertama tertentu sudah dilakukan secara ekstensif, bukti secara langsung diperlukan, terutama dalam bidang kimia dan studi bahasa. Penelitian ini mengkaji penggunaan kata ganti orang pertama jamak dalam bahasa Inggris (*we, our, *dan* us*) dan bahasa Indonesia* (*kami*, *kita*) *serta klusivitasnya dalam 40 artikel penelitian yang diterbitkan oleh The Modern Language Journal, Nature Chemistry Journal, Litera Journal, dan Alchemy Journal dalam rentang tahun 2021 hingga 2023. Penelitian ini bertujuan untuk menyoroti perbedaan cara penulis dari berbagai disiplin dalam menentukan posisi mereka dalam penulisan akademis, khususnya pada artikel penelitian di bidang kimia dan studi bahasa. Untuk mengatasi hal ini, kami membuat dua korpus khusus—English Corpus of Language Studies and Chemistry (Encolanche) dan*

Indonesian Corpus of Language Studies and Chemistry (Indolanche). Sketch Engine, aplikasi daring yang memfasilitasi penyusunan kata dan konkordansi untuk pengujian dalam proses penelitian, digunakan dalam penelitian ini. Analisis kualitatif juga dilakukan untuk memeriksa klusivitas dan identitas penulis dalam setiap bentuk linguistik berdasarkan taksonomi yang diusulkan Martín (2003). Hasil penelitian ini menunjukkan penggunaan yang sering dari kata ganti we *dalam bentuk eksklusif, yang pada umumnya digunakan untuk menyatakan penulis sebagai pelaksana eksperimen. Sebaliknya, Indolanche jarang menunjukkan penggunaan kata ganti orang pertama*.

Kata kunci*: identitas penulis, linguistik berbasis korpus, lintas disiplin, pronomina, artikel penelitian.*

INTRODUCTION

First-person pronouns and self-citations are not merely stylistic choices but essential elements for establishing a credible scholarly identity and validating research claims (Hyland, 2001). In this scenario, first-person pronouns help authors convey their identities in their work, especially when sharing their claims and results, ensuring effective interaction with readers while preserving the integrity of their data. According to Hyland (2002), first-person pronouns are the most visible and prominent presence of authorial identity, which in this case is also perceived as "a significant means of promoting a competent scholarly identity and gaining acceptance for one's idea" (p. 20). This presence serves to signal the author's visibility explicitly and their willingness to take responsibility for the research roles in claims and actions (Hyland & Jiang, 2018).

Numerous studies have explored authorial identities in various academic writing (AW) genres. For example, Goodz & Lightbown (1996) examined conference abstracts, Çandarlı, Bayyurt, & Martı (2015) focused on student essays, and Wu & Zhu (2015) analyzed articles. Beyond these genres, researchers have also investigated authorial identities across different fields and languages.

Rozanatunnisa & Hardjanto (2022) found that authors of research articles (RAs) in biology frequently use first-person pronouns to demonstrate their involvement in AW. In cross-disciplinary studies, Cheung & Lau (2020), Danis (2022), and Wang & Zeng (2021) compared the use of first-person pronouns across various disciplines. Their findings revealed that computer science articles surprisingly employed more first-person pronouns than literature articles, challenging traditional academic writing norms. Danis (2022) expanded this research by examining disciplinary identity through first-person pronoun usage across six fields. The results indicated that social sciences and humanities authors use 'I' more often than those in hard sciences. Meanwhile, Wang & Zeng (2021) focused on Chinese Ph.D. students and journal authors, analyzing self-mentions along with amplifiers and qualifiers. Their study showed that student writers use fewer self-mentions with boosters but more with hedges compared to expert writers. Additionally, Rozanatunnisa & Hardjanto's (2022) study of articles from Genome Biology and Molecular Systems Biology applied Tang & John's (1999) taxonomy of authorial selves. Their findings indicate a trend among biology authors to use exclusive pronouns to assert their presence in AW, portraying themselves as narrators of the research process and originators of research claims.

As far as we have observed, only a few studies have been made in other fields aside from these vast research, particularly when comparing the clusivity of first-person pronouns between

chemistry as a hard discipline and language studies as a soft discipline. The field of chemistry is included in the hard pure discipline category because it is concerned with universals, has a cumulative, atomistic structure, simplification, and emphasizes quantification. In contrast, the field of language studies falls under the category of soft applied discipline because it relies on practical knowledge and focuses on improving professional skills by developing specific protocols and procedures (Neuman, Parry, & Becher, 2002). This distinction between disciplines highlights the need for further exploration into how clusivity is employed across different academic contexts.

In a cross-linguistic and cross-cultural study, Hryniuk (2018) compared Polish and Anglo-American authors' use of self-reference. Using Hyland's (2002) framework, the study revealed significant differences in pronoun and determiner usage between the two groups, attributed to distinct cultural writing conventions. First-person pronouns in academic writing (AW) acknowledge the researchers' presence and provide a good chance for research articles (RAs) to develop a genuine authorial presence consistent with the identity of their respective academic communities (Hyland, 2002). Personal pronouns are often overused or underused by academics and students. For instance, Turkish academic writers significantly underused self-mention words to downplay their role in their studies and adopt a less clearly independent stance (Kafes, 2017). The majority of them are really concerned about whether or not certain personal pronouns are acceptable in their academic circles. Indeed, culture and nationality may play an important role in writers' preferences in using personal pronouns (Hyland, 2002). Such studies are very rarely conducted on Indonesian writers who compose in their native language. Asprillia (2020) highlights the infrequent use of first-person pronouns among Indonesian authors. This aligns with the findings of Susanti et al. (2008), who observed that the indirect nature of Indonesian communication influences how individuals present themselves in their writing.

The preceding discussion has sparked interest in further researching clusivity within the fields of chemistry and language studies in both English and Indonesian. The aim is to enhance awareness of the diverse rhetorical choices available in academic discourse. In linguistics, clusivity refers to the grammatical distinction between inclusive and exclusive first-person pronouns in certain languages. Essentially, it reflects whether the speaker includes (inclusive) or excludes (exclusive) the listener or readers from the set of referents containing the speaker (Filimonova, 2005). For instance, the English inclusive pronoun we encompasses both the author and the audience, emphasizing a shared perspective—an equivalence seen in the Indonesian term *kita*. However, unlike English, which uses a single form for both inclusive and exclusive first-person plural pronouns, the Indonesian language includes *kami* alongside *kita* to specifically denote the group of authors themselves.

Building on insights from Hyland (2001) and Martín (2003), this study investigates how authors construct their identities. Martín's (2003) framework, which categorizes first-person pronouns functionally, serves as a valuable tool for classifying these pronouns. The study's objectives include determining the density of we, our, and us in the English specialized corpus of language studies and chemistry (Encolanche), as well as the density of *kami* and *kita* in the corresponding Indonesian specialized corpus (Indolanche). These densities will be calculated based on total occurrences and distribution. Additionally, the study aims to explore the specific roles or functions that these pronouns fulfill in the discourse of both languages and various types of journal articles. For instance, we will examine whether they express the author's role as the experiment conductor. In summary, two key research questions have been formulated:

1. What linguistic forms do English and Indonesian authors use to express authorial identities in their research articles in chemistry and language studies?
2. What specific functions do first-person plural pronouns serve in relation to clusivity? Are there significant differences in how they are expressed across English and Indonesian?

MARTÍN'S FRAMEWORK

Martín's (2003) taxonomy provides a structured framework for categorizing clusivity in person pronoun usage within academic contexts. Among various taxonomies, Martín's theory was selected because it best aligns with the research topic. Kuo's (1999) and Mur-Dueñas's (2007) taxonomies were excluded due to their extensive categories, which risked overlap. Similarly, Hyland's (2002) and Tang and John's (1999) taxonomies were not utilized, as they exclusively categorize pronouns related to exclusivity. In contrast, Martín (2003) classifies both inclusive and exclusive pronouns. Below, we delve into each category, providing examples from Martín's research. Additionally, we offer corresponding examples from the Indonesian context.

Inclusive

In this category, inclusive first-person pronouns encompass both the speaker (or writer) and the listener (or reader) as part of the group being referred to. In languages with inclusive pronouns, the speaker and the listener are included in the reference. For example, if the pronoun we is inclusive, it refers to both the speaker and the listener, indicating that both are involved in the action or situation being discussed. This category is divided into two subtypes: pronouns that refer to people in general (Inclusive A) and pronouns that refer to a smaller group of people, which are the members of the discourse community (Inclusive B). In the case of Indonesian as mentioned previously, the pronoun *kita* is inclusive.

Exclusive

Exclusive first-person pronouns refer solely to the speaker (or writer) and other individuals, excluding the listener (or reader). For example, if the pronoun we is exclusive, it includes the speaker and others but excludes the listener, indicating that the listener is not involved in the discussed action or situation. The Indonesian equivalent of the exclusive we is *kami*.

This form of semantic reference enhances authorial presence, as it exclusively refers to the writers. The degree of authoritativeness displayed in the text is related to this presence (Işık-Taş, 2018). Five functions reflect the specific communicative purpose of the writer. Below are examples illustrating how first-person plural pronoun expresses these roles.

The Authors as the Describers of the Research

The role of authors as describers of research using first-person plural pronouns foregrounds those who write, organize, structure the discourse, and outline the material in an abstract (Martín, 2003). This approach helps authors organize the text and guides readers through the argument by pairing pronouns with verbs that refer to overall actions, such as 'examine,' 'report,' and 'investigate'.

The Authors as the Experiment Conductors

In this role, the writers employ first-person pronouns to describe and recount the research process. Typically found in the methods section, this narration provides a detailed account of the experimental procedure and methodology. Verbs are often in the past tense, reflecting steps completed before writing the article. For instance, "We used an existing database…"

The Authors as the Opinion Holders

In this role, writers express opinions, views, or attitudes related to existing information. They employ verbs of cognition (such as 'think' or 'believe). For example, consider the phrase: "Our feeling is that it is not easy to find a simple and significant extension…" This example, provided by Cheung and Lau (2020), illustrates how authors use first-person pronouns to convey their perspective. Notably, Martín (2003) did not offer a specific example in this category. In Indonesian, the pronoun ***kami*** may be followed by verbs such as '*kira/mengira'* or '*percaya'*. For instance, consider the phrase: "***Kami*** *percaya bahwa studi tentang hal ini perlu untuk dilakukan*," which translates to "We believe that a study about this matter needs to be conducted" in English.

The Authors as the Cautious Claim-Makers

This function is used by authors to establish a more personal sense of authority based on confidence and command when showing the results of their research and drawing conclusions (Martín, 2003). The extent of authorial influence is somewhat reduced when first-person pronouns are accompanied by hedging elements like modal verbs or adjectives. These linguistic devices introduce caution to claim, representing uncertainty and certainty respectively.

The Authors as the Fully-Committed Claim-Makers

In this role, authors assert authority and take ownership of the claims presented in their text. By using first-person pronouns confidently, they position themselves as competent researchers capable of originating new ideas. For instance, "We have demonstrated in earlier work…" which is equivalent to the Indonesian version "*Kami telah mendemonstrasikannya dalam pekerjaan sebelumnya*…".

METHODOLOGY

The study draws from the specialized corpora named Encolanche and Indocolanche, as previously presented. Specifically, *Encolanche* comprises 10 articles each from *The Modern Language* (language studies) and *Nature Chemistry* (chemistry) journals, while *Indocolanche* includes 10 articles each from the *Litera* (language studies) and *Alchemy* (chemistry) journals. The combined corpora contain 218,726 words, with 78,244 words from Indonesian journal articles and 140,482 words from English journal articles (see Table 1).

Table 1. Total Number of the Corpora

Corpora	Fields of Study		Total
	Chemistry	Language Studies	
Encolanche	56,545	83,937	140,482
Indocolanche	30,609	47,635	78,244
Total	**87,154**	**131,572**	**218,726**

While selecting English journals was straightforward based on the Scimago Journal and Country Rank using the SCImago Journal Rank (SJR) indicator, choosing Indonesian journals that met the criteria posed challenges. Only a limited number of journals are nationally ranked by the Sinta Science and Technology Index, particularly Sinta 1 & 2, which publish articles in Indonesian. Ultimately, two Sinta 2 journals were selected. The initial step involved selecting the RAs based on specific criteria. The articles had to fall within the range of 2021 to 2023 and be written by multiple authors; specifically, the first authors of each article had to be different. The

nativity of the authors was determined through their names and affiliations within each RA. The timeframe was established to anticipate swift shifts in the development of AW styles. Single-authored articles were excluded due to the complexity of understanding the use of first-person plurals by individual writers. This choice may be viewed as a strategy for authors to distance themselves from their work, as suggested by Hyland (2002). Meanwhile, the selection of different first authors was crucial for understanding how first-person pronouns are used. It ensures a diverse analysis of writing styles, prevents generalizations, and enables comprehensive exploration across various contexts and disciplines.

All of the criteria are the cause of why there were only 40 articles used for this research. However, with only 40 articles, we were confident that it had already provided relatively sufficient data given the available time, although it may not fully represent the population of the Indonesian and English AWs nor the fields of chemistry and language studies. Following the selection, all images, tables, and diagrams were removed from the articles. The remaining textual content was copied and pasted into new files with the .txt extension using TextEdit. The data to be collected and analyzed in this study consists of all first-person plural pronouns.

In the data collection process, Sketch Engine, a leading corpus tool encompassing both the functionalities of a 'corpus query tool' and a 'corpus web service' (Kilgarrif et al., 2014), was employed to simplify the compilation of articles into concordances. The wordlist tool was utilized to address the first objective, calculating the total number of occurrences and their distribution. This tool generates various types of frequency lists. To address the second objective, a concordance tool was employed. This tool allowed us to examine raw data, identify occurrences within articles, and explore typical pairings, such as with past or present tense for the data found in Encolanche. This involved examining the specific roles or functions served by first-person plural pronouns in the discourse of the corpora, along with the clusivity of pronouns. In this phase, we limited our searches to simple queries by utilizing the basic functionalities of CQL, rather than the advanced ones. For example, we specifically targeted first-person plural pronouns by selecting the pronouns option. The advanced functionalities allow users to search for corpus structures such as sentence or paragraph beginnings and endings in one search.

Before the analysis process, we recorded pronouns in a spreadsheet and grouped them based on their clusivity. Additionally, during the concordance analysis, we conducted a double-check to ensure alignment with the intended analysis. For instance, the term we may not necessarily indicate the article's author but could refer to another author cited within the articles. The same applies to kami, which can refer to somebody other than the author, as it exists in a sample sentence. Sentences falling into this category were excluded from the list before further analysis. We applied the same treatment to both corpora.

During the analysis process, authorial pronouns were examined in detail by referring to the table created in the spreadsheet. This examination focused on the authorial selves expressed through the use of first-person pronouns, as formulated by Martín (2003). Finally, we applied normalization as a method to present the results, and we used the chi-square (χ^2) test to examine whether a significant difference exists both cross-disciplinarily and cross-linguistically. In applied linguistics, the commonly adopted significance level or p-value is 0.05 (McEneery & Wilson, 1996; Martinez, 2005).

FINDINGS AND DISCUSSIONS

Frequencies of First-Person Plural Pronouns in the Corpora

The overall findings reveal a difference in the frequency of first-person plural pronouns across the corpora, as observed in Table 2. Specifically, Encolanche exhibits a notably higher occurrence of first-person plural pronouns, with 426 pronouns per 100,000 words. In contrast, Indolanche contains only 17 instances of such pronouns per 100,000 words.

Table 2. Frequency of First-Person Plural Pronouns in the Corpora p100kw

Languages	Raw	Normal
English	599	426
Indonesian	13	17
Total	**612**	**443**

The chi-square test, conducted to examine the significance of differences between first-person plural pronouns in Endolanche and Indolanche, yielded $\chi^2_{(1)} = 377.609$, $p < 0.0001$. This highly significant difference remarkably aligns with the findings from Kafes' (2017) study on Turkish individuals, suggesting a shared characteristic between these Indonesian and Turkish authors in terms of self-mention avoidance. The limited use of first-person pronouns among Indonesian writers may be influenced by several factors. Susanti et al. (2018) describe that in Indonesian academic writing, there exists a preference for an indirect and impersonal style. Authors refrain from directly referring to themselves, as it is considered impolite.

Table 3. Frequency of Pronouns in Chemistry and Language Studies p100kw

	Pronouns in Chemistry		Pronouns in Language Studies	
Languages	**Raw**	**Normal**	**Raw**	**Normal**
English	243	430	356	424
Indonesian	4	13	9	19
Total	**247**	**443**	**365**	**443**

In terms of the sub-disciplines within the corpora (see Table 3), the chi-square test quantification aimed to determine whether the difference in overall pronoun usage between chemistry and language studies is significant. The results indicated that this difference was insignificant ($\chi^2_{(1)} = 0.224$, $p > 0.635$). However, when comparing chemistry and language studies in Endolanche, the chi-square test revealed significance ($\chi^2_{(1)} = 85.777$, $p < 0.001$), whereas in Indolanche, it remained insignificant ($\chi^2_{(1)} = 1.125$, $p > 0.288$).

The Analysis of the Clusivity of First-Person Pronouns in the Corpora

In Table 4, the most frequently used pronoun was we. This finding aligns with previous studies (Kuo, 1999; Hyland, 2001; Martín, 2003; Rozanatunnisa & Hardjanto, 2022), which consistently identified a dominance in the usage of first-person plurals. Martin (2003) discovered that we was preferred as the reference in both English and Spanish scientific texts, although he concluded that impersonality tends to be the favored choice, similar to Kafes' (2017) findings. The difference in the frequency of we, our and us was highly significant ($\chi^2_{(2)} = 338.126$, $p < 0.001$). In the Indonesian corpora (see Table 5), *kita* appeared more frequently. However, the difference in frequency between *kita* and *kami* proved to be insignificant ($\chi^2_{(1)} = 2.882$, $p > 0.089$).

Table 4. Frequency of Linguistic Forms of Authorial Identities in Encolanche p100kw

Pronouns	Raw	Normal
We	443	315
Our	133	95
Us	23	16
Total	**599**	**426**

Table 5. Frequency of Linguistic Forms of Authorial Identities in Indocolanche p100kw

Pronouns	Raw	Normal
Kami	4	5
Kita	9	12
Total	**13**	**17**

Tables 6 and 7 below further provide more detailed information about the frequency of the different forms of the pronouns we, our, and us in the English corpus and *kami* and kita in the Indoneisan corpus. the fields of computer science, electrical engineering, and physics, as noted by Kuo (1999), the predominant personal pronouns used are we, us, and our. This pattern aligns with Hyland's (2001) findings in RAs within the hard sciences, exclusively utilizing we, us, and our. As for Indonesian personal pronouns, a relevant comparison can be made with Asprillia's (2020) study on personal references in science education journal articles. She found that the frequency of plural first-person pronouns was approximately 24 per 100,000 words or 18% of the overall authorial references. Additionally, she reported that even fewer self-references were used by the authors, specifically the first-person singular pronoun, occurring at a rate of only 3 per 100,000 words or 2%. Notably, the highest self-reference preferred by Indonesian authors was the term *peneliti,* which translates to 'researcher' (Asprillia, 2020).

Table 6. Frequency of Linguistic Forms of Authorial Identities in Encolanche p100kw

Pronouns	Chemistry		Language Studies	
	Raw	Normal	Raw	Normal
We	211	373	232	276
Our	28	50	105	125
Us	4	7	19	23
Total	**243**	**430**	**356**	**424**

Table 7. Frequency of Linguistic Forms of Authorial Identities in Indocolanche p100kw

Pronouns	Chemistry		Language Studies	
	Raw	Normal	Raw	Normal
Kami	4	13	0	0
Kita	0	0	9	19
Total	**4**	**13**	**9**	**19**

In the selected articles, multiple authors contribute, which explains the use of plural pronouns. Additionally, the possessive form our is strategically inserted to emphasize the writers' individual contributions and closely link them to their work. In Indonesian, both *kami* and *kita* can be used genitively by attaching a noun before the personal pronoun (e.g., *'makanan kami'*

and *'makanan kita*,' both meaning 'our food' in English, with exclusive and inclusive connotations, respectively).

In each corpus, there is a slight variation in the overall frequency of pronouns, as observed in Tables 8 and 9. The high frequency of identity as the experiment conductor can be attributed to the discipline, which allows researchers to engage in multiple stages of experiments. This function is commonly found in English and Indonesian chemistry journals, as well as English language studies journals. However, only a few instances of pronouns expressing the authors' identities as opinion holders or cautious claim-makers appear in the English corpus. The absence of authorial references related to this process's identity may indicate that these authors assert powerful authority in their writing (Tang & John, 1999). For more detailed frequency distribution tables, please refer below.

Table 8. Raw Frequency of Inclusive & Exclusive First-Person Pronouns in Encolanche

Pronouns	Inclusive	Exclusive	Total
We	32	411	443
Our	11	122	133
Us	7	16	23
Total	**50**	**549**	**599**

Table 9. Raw Frequency of Inclusive & Exclusive First-Person Pronouns in Indocolanche

Pronouns	Inclusive	Exclusive	Total
Kami	0	4	4
Kita	9	0	9
Total	**9**	**4**	**13**

The pronoun references found in the Indonesian corpus were very limited in number. Specifically, the exclusive pronoun ***kami*** (4 instances) appeared exclusively in chemistry articles, while the inclusive pronoun ***kita*** (9 instances) was only found in the language studies journal. Interestingly, all the occurrences of ***kami*** were concentrated in a single chemistry article, and similarly, all instances of ***kita*** were confined to one language studies article. Tables 10 and 11 below corroborate prior research (Martín, 2003), revealing that the majority of first-person plurals identified in the selected English articles were exclusive, implying exclusion of the addressee or reader as referents. The absence of inclusivity suggests that authors rarely employ personal pronouns as a strategy to engage the reader. the following sections explore the usage of these linguistic forms in the texts, examining both their inclusivity as first-person plurals and the context in which these pronouns were used.

Table 10. First-Person Pronoun Clusivity in Chemistry Sub-Corpus of Encolanche p100kw

Pronouns	Inclusive		Exclusive		Total	
	Raw	Normal	Raw	Normal	Raw	Normal
We	8	14	203	359	211	373
Our	3	5	25	44	28	50
Us	3	5	1	2	4	7
Total	**14**	**25**	**229**	**405**	**243**	**430**

Table 11. First-Person Pronoun Clusivity in Language Studies Sub-Corpus of Encolanche p100kw

Pronouns	Inclusive		Exclusive		Total	
	Raw	Normal	Raw	Normal	Raw	Normal
We	24	29	208	248	232	276
Our	8	10	97	116	105	125
Us	4	5	15	18	19	23
Total	**36**	**44**	**320**	**382**	**356**	**424**

We

In Table 10, we observe that the pronoun we was most frequently used in the chemistry sub-corpus of Encolanche. This high frequency may be linked to its syntactic role as a nominative pronoun, occupying the subject position (Biber, Conrad, & Leech, 2002). Interestingly, this finding aligns with Martín's (2003) study, where over 70% of instances in scientific texts by native English speakers were exclusive.

Both fields—chemistry and language studies—tend to favor exclusive pronouns more than inclusive ones. However, upon closer examination of individual disciplines, we notice that exclusive pronouns are more prevalent in hard disciplines compared to those in soft disciplines. Harwood's (2005) earlier research supports this observation, revealing that exclusive pronouns are commonly employed in hard fields when we is used.

Moreover, the inclusive phrase we shall/will see, often found in research article introductions, enhances reader-friendliness and fosters positive politeness by treating the readership as equals. By using this phrase, writers emphasize the novelty of their research, implying that additional evidence or explanations will follow (Harwood, 2005). For instance, in Example (1) below, the inclusive we guides readers back to previously covered ground, summarizing the author's argument or findings before progressing.

(1) If PET had used the word umpire in the subsequent turn or later, one could have argued for a stronger learning potential, as we will see in the analyses of Excerpts 3 and 4. (LangSt #10)

(2) To minimize the effect of sample preparation conditions, we compared stability of multilayer MXenes of similar size in pure water at room temperature and at 71 °C (Supplementary Fig. 21). (Chem #01)

Despite the initial appearance of inclusivity, Example (2) subtly reinforces the exclusivity of the discourse. The writer, about to outline a programming procedure, positions themselves as the authoritative guide, creating an atmosphere where the audience feels more like recipients of a lecture than active participants in a consultation.

Our

The second-most frequent pronoun identified in this study is our. As previously noted, this finding aligns with the overall research trend of first-person plurals lacking inclusivity. Across both fields, exclusive pronouns consistently outweigh inclusive ones in frequency.

However, when comparing disciplines, the use of our—both in exclusive and inclusive contexts—prevails more in soft disciplines than in hard disciplines. These findings align with existing research by Hryniuk (2018), Martín (2003), Hyland (2001, 2002), and Kuo (1999).

Building upon Kuo's (1999) work, it becomes evident that our ranks as the second most commonly used pronoun in journal articles within computer science, electronic engineering, and physics.

The syntactic role of our as a possessive determiner may contribute to its lower frequency compared to the nominative we (Biber, Conrad, & Leech, 2002). Furthermore, in Hyland's (2002) investigation, the mention of we and its determiner our can be interpreted as explicit references to the authors themselves. This self-mention serves a rhetorical and communicative purpose, emphasizing the researchers' active involvement and ownership in the presented work.

The second-most frequent pronoun that was found in this study is our. As previously noted, this finding aligns with the overall finding of this research which is the lack of inclusivity of first-person plurals. Both fields consistently employ exclusive pronouns more frequently than inclusive ones. Nevertheless, when comparing disciplines, the use of our—both in exclusive and inclusive contexts—is more prevalent in soft disciplines than in hard disciplines. These findings corroborate existing research by Hryniuk (2018), Martín (2003), Hyland (2001, 2002), and Kuo (1999). Expanding upon Kuo's (1999) work, it was observed that our ranked as the second most commonly used pronoun in journal articles within the realms of computer science, electronic engineering, and physics. The syntactic role of our as a possessive determiner may contribute to its lower frequency when contrasted with the nominative we (Biber, Conrad, & Leech, 2002). Furthermore, in Hyland's (2002) investigation, the mention of we and its determiner our can be interpreted as explicit references to the authors themselves. This self-mention serves a rhetorical and communicative purpose, underscoring the researchers' active involvement and ownership in the presented work. The following examples illustrate how inclusive and exclusive instances of our are expressed.

The following examples illustrate how inclusive and exclusive instances of our are expressed.

(3) Examples of cognitive artifacts embedded in our everyday life include road signs or way-finding signage in public buildings… (LangSt #08)

(4) …functional TNA molecules in the form of nucleic acid catalysts have not been employed in biomedical applications so far, to the best of our knowledge. (Chem #07)

The examples provided illustrate the nuanced use of the pronoun *our* in various contexts. For instance, in (3), the phrase "Examples of cognitive artifacts embedded in our everyday life" implies a collective understanding, encompassing both the author and the readers in the discussion of cognitive artifacts. Similarly, in (4), the phrase "… to the best of our knowledge" suggests a collaborative awareness, emphasizing that the authors and readers share the same level of understanding regarding the biomedical applications of TNA molecules. On the other hand, the exclusive use of our, as seen in (5) and (6) below, serves to delineate a specific group or context within the research.

(5) As our research explores the identities of researchers publishing research at the crossroads of research and professional practice… (LangSt #06)

(6) Our studies suggest that amido/imido-surface chemistry generally improves MXene resistance against hydrolysis… (Chem #01)

In Example (5), the phrase "our research" delves into the identities of researchers, establishing a boundary that confines the discussion to those directly involved in the study. Similarly, in Example (6), the expression "Our studies suggest" emphasizes ownership by the authors. This implies that the findings mentioned are specifically based on the authors' research related to amido/imido-surface chemistry and MXene resistance against hydrolysis.

Us

In the corpora, the pronoun us was less frequently employed compared to its nominative and possessive forms. Specifically, in the chemistry sub-corpus, it occurred 4 times (or 7 instances per 100,000 words), while in the language studies sub-corpus, it appeared 19 times (or 23 instances per 100,000 words). This finding aligns with previous studies (Işık-Taş, 2018; Mur-Duenas, 2007). The lower frequency of accusative pronouns is expected, as they are more commonly used in conversation than in academic prose (Biber, Conrad, & Leech, 2002).

This research highlights a noteworthy pattern regarding the exclusive pronoun us. It is observed that this pronoun appears more frequently in soft disciplines (8 instances) than in hard disciplines (1 instance per 50,000 words). Conversely, the inclusive form of us is slightly more common in hard disciplines (3 instances) than in soft disciplines (2 instances per 50,000 words). The use of exclusive us closely parallels the application of the nominative form of we. One significant function of this pronoun is to signal to readers that the work and findings being discussed are the original contributions of the authors (as exemplified in example (2)). Additionally, it conveys that the authors not only conducted the entire research process but also evaluated and organized the chosen methodology (as illustrated in example (3)). Consequently, the authors use the exclusive us to present themselves as both experiment conductors and assertive claim-makers, aligning with Martín's assertion (2003).

(7) First, it invites us to re-think the cognitive processes related to language learning. (LangSt #08)

(8) This advance is made possible by a spin–orbit state-selected Ar+ ion beam and substantially improved imaging resolution, which allow us to address most of the controversies in the literature. (Chem #03)

In the examples provided, the strategic use of the pronoun us illuminates the authors' active involvement and shared perspective in the research process. For instance, the statement "First, it invites us to re-think the cognitive processes related to language learning" suggests that the authors consider themselves integral to the process of reconsidering cognitive processes, fostering a sense of collaboration with the readers. Similarly, the inclusive us in the phrase "which allow us to address most of the controversies in the literature" emphasizes the collective involvement of the authors in the research process, highlighting their ability to address controversies as a team. In contrast, the example below demonstrates the exclusive use of us.

(9) These beliefs have driven us to select the methodology of this study… (LangSt #01)

(10) The carbapenem-type binding mode of the InCs enabled us to fine-tune MBL activity. (Chem #08)

In example (9), the phrase "These beliefs have driven us to select the methodology of this study" uses us to convey that the authors' beliefs played a crucial role in shaping the study's methodology, highlighting their central role in decision-making. Lastly, in example (10), the

exclusive use of us underscores the authors' capability and active role in fine-tuning MBL activity through a specific binding mode, reinforcing their direct contribution to the reported outcomes.

When exploring the inclusiveness of a plural pronoun in the English language, it's crucial to take into account the overall context of the conversation in which it was employed. This is due to the absence of a formal distinction between exclusive and inclusive uses of we in English, with the only exception being the imperative let's, indicating inclusivity. However, let us can be either inclusive or exclusive, depending on the context (Quirk, 1985; Wales & Katie, 1996). The determination of inclusivity, whether the pronoun encompasses or excludes the person being addressed, may hinge on the speaker's intention and the relationships among individuals involved. A thorough analysis of the broader context is essential for ensuring a more precise interpretation.

When examining the inclusiveness of plural pronouns in English, context plays a pivotal role. Unlike some languages that explicitly differentiate between exclusive and inclusive forms, English lacks such formal distinctions—except for the imperative let's which inherently implies inclusivity. However, the pronoun let us can be either inclusive or exclusive, depending on the context (as noted by Quirk, 1985, and Wales & Katie, 1996). The determination of inclusivity hinges on the speaker's intention and the relationships among individuals involved. A thorough analysis of the broader context is essential for interpreting these pronouns more precisely.

Kami* & *kita

As previously discussed, *kami*, is the exclusive first-person plural pronoun in Indonesian, while kita serves as the inclusive counterpart. Unlike the English we, these two forms explicitly convey exclusivity or inclusivity without relying on specific context. However, *kami*, typically used by two or more writers to refer to themselves, may also be employed by a single writer to self-refer. This phenomenon can even occur in spoken discourse, where a speaker uses *kami* instead of *aku* or *saya* (the equivalent of the English accusative pronoun 'I'). The corpus only provides instances which contain *kami* that refers to multiple writers. Please check the following excerpt.

(11) *Penelitian yang kami lakukan sebelumnya berhasil mensintesis bahan Na2FeSiO4* (The research we conducted previously successfully synthesized Na2FeSiO4) (Kimia #07)

On the other hand, *kita* has a unique characteristic. Like the inclusive *we*, it can refer to both writers and readers, and it may extend to encompass a broader group, such as all the people in a country or the world. The followings are some example drawn from the Indonesian corpus.

(12) *Berdasarkan keterangan pada tabel sebelumnya dapat kita dipahami bahwa (1) bahasa daerah dikategorikan safe (aman) jika digunakan oleh seluruh generasi dari berbagai jenjang usia, sehingga transmisi mampu berjalan normal.* (Based on the information in the previous table, we can understand that (1) regional languages are categorized as 'safe' if they are used by all generations across various age groups, allowing for normal transmission.) (Bahasa #10)

(13) *Janganlah kita bertabiat seperti anjing ini, kita harus pandai membendung keinginan jika kita ingin mendapatkan sesuatu.* (Let us not behave like this dog; we must learn to restrain our desires if we want to achieve something.) (Bahasa #10)

In (12), it is evident that the pronoun *kita* refers exclusively to the writers and readers. However, in (13), the same pronoun *kita* may also include a broader audience, such as people in general.

The Analysis of the Discourse Functions of First-Person Pronouns in the Corpora

This section explores the use of first-person plural pronouns to convey authorial identities in journal articles within the fields of chemistry and language studies. The organization of subsections in this chapter aligns with the authors' intention to present various dimensions of their authorial personas—a framework introduced by Martín (2003). Building upon the concept of the "self as author," also discussed by scholars like Ivani (1998), Kuo (1999), and Tang & John (1999), this classification identifies five distinct authorial roles in scientific texts: research describers, experiment conductors, opinion holders, cautious claim-makers, and fully-committed claim-makers (Martín, 2003). Due to the relatively small data from the Indonesian corpus, we refrain from presenting specific tables for them in this section, although relevant accounts are provided where applicable.

The Authors as the Describers of the Research

In AW, the use of first-person pronouns such as we and our serves various discourse functions, as observed by linguists specializing in DA. Scholars like Hyland (2002) and Martín (2003) provide valuable insights into the nuanced roles of these pronouns in scholarly communication. Martín (2003) emphasizes that employing the first-person pronoun foregrounds the author, who shapes the discourse, organizes content, and outlines material in the abstract. Interestingly, when expressing this role, authors from both journals appear to exhibit minimal differences, as indicated in the frequency table below.

Table 12. Frequency of First-Person Pronouns Expressing the Describers of the Research p100kw in Encolanche

Pronouns	Chemistry		Language Studies	
	Raw	Normal	Raw	Normal
We	40	71	52	62
Our	6	11	36	43
Us	0	0	4	5
Total	**46**	**82**	**92**	**109**

In both sub-corpora, the most frequently used pronoun to express the researcher (or describer) of the research is we. Notably, in the field of chemistry (a hard discipline), this frequency is even higher. This aligns with the observation that when stating goals or purposes—a crucial aspect of an architect's task—authors commonly employ the pronoun we (as noted by Kuo, 1999). Here are examples taken from the texts.

(14) Our analysis illustrates how the affordances of the smartphone support the focal participant in formulating social actions in interactions in the classroom and everyday contexts. (LangSt #08)

(15) Here we introduce a general approach toward hybrid organic–inorganic MXenes (h-MXenes) with a broad scope of organic terminal groups. (Chem #01)

(16) *Proses ekstraksi silika pada penelitian ini mengacu pada penelitian kami sebelumnya* (Riyanto et al., 2020). (The silica extraction process in this study refers to our previous research (Riyanto et al., 2020). (Kimia #07)

In the given instances, the writers consciously present themselves as cooperative participants, highlighting a collective commitment and collaborative approach in the research process. This linguistic choice promotes a feeling of shared involvement and underscores the authors' positions as both originators and contributors to the academic work. The use of our in example (14) accentuates the author's ownership of the analysis, signaling that the insights presented are attributed to them. This further strengthens their role as the individuals responsible for conducting and interpreting the research on how smartphone affordances facilitate social actions. In example (15), the authors employ we to actively introduce a new approach, positioning themselves as the initiators and conveyors of the described method. This choice reinforces their role as the ones responsible for presenting and explaining the introduced approach regarding hybrid organic–inorganic MXenes. In each instance, the use of we and our contributes to the transparency of authorship, emphasizing the authors' active engagement, collaboration, and ownership in various facets of the research. The same applies to example (16), where the authors aim to explain the silica extraction process by referencing their previous research.

The Authors as the Experiment Conductors

In the context of AW, the author assumes a vital role as the conductor of the experiment, significantly shaping the narrative of the research journey. This unique responsibility involves employing first-person pronouns like we and we to detail and explain various stages in the research process. Typically found in the methods section of abstracts, this narrative presence is characterized by the use of past-tense material process verbs such as worked, collected, or interviewed. By actively engaging with these verbs, the author not only guides the reader through the methodology but also reinforces their professional expertise. The frequency table below illustrates the frequent utilization of this role.

Table 13. Frequency of First-Person Pronouns Expressing the Experiment Conductors in Encolanche p100kw

Pronouns	Chemistry		Language Studies	
	Raw	Normal	Raw	Normal
We	100	177	68	81
Our	8	14	22	26
Us	0	0	6	7
Total	**108**	**191**	**96**	**114**

The findings above indicate that, in hard discipline fields, the use of the pronoun we has a higher frequency. According to Hyland (2001), writers in this field primarily focus on detailing the procedures they have performed and prioritize constructing comprehensive theories about reality, rather than positioning themselves as practical. Here are examples taken from the texts.

(17) As fixed effects, we entered test (pretest vs. posttest), order (subject vs. object), group (PTL vs. control), and language status (majority language vs. minority language). (LangSt #07)

(18) To optimize the labeling conditions, we reduced the alkyne–botin from 2 mM to 200 μM and decreased the labeling time from 1 to 0.5 h, which achieved a much cleaner background. (Chem #06)

In these examples, the use of we and our serves a discourse function by emphasizing the active involvement and responsibility of the authors as experiment conductors. It indicates that

the authors are actively engaged in the research process and decision-making. The pronouns we and our help establish a connection between the authors and the readers, presenting a collaborative journey of exploration and problem-solving. This inclusive language involves the readers in the unfolding narrative of the research, portraying the authors as guides through the methods, challenges, and outcomes.

The Authors as the Opinion Holders

In this function, authors express their opinions, signaling agreement, disagreement, and interest. First-person pronouns are consistently paired with verbs of cognition (e.g., believe, wish, propose, prefer) and modals (such as can, could, and might). This strategy encourages the presentation of diverse viewpoints, inviting readers to engage in the ongoing discussion (Wang & Zeng, 2021). Within our study, all identified opinion holders inherently occupy an exclusive position. In this context, authors are compelled to explicitly articulate their viewpoints, aligning with Hyland's research (2001). Interestingly, authors in the soft discipline field assume the role of opinion holder more frequently than their counterparts in the hard discipline field. Although the percentage of first-person plural ("we") usage per 50,000 words is only slightly higher, this discrepancy arises because soft discipline authors emphasize a visibly authoritative and individualistic authorial identity, highlighting their practical skills and broader perspectives.

All identified opinion holders in this study are inherently exclusive. In this context, authors are compelled to explicitly articulate their viewpoints, aligning with Hyland's (2001) findings. The study reveals that, overall, authors in the soft discipline field tend to assume the role of opinion holder more frequently than those in the hard discipline field, although the percentage of we usage per 50,000 words is only slightly higher. This discrepancy arises because authors in the soft discipline field exhibit a more visibly authoritative and individualistic authorial identity by emphasizing their practical skills and broader perspectives. Below is the frequency table and the examples taken from the texts.

Table 14. Frequency of First-Person Pronouns Expressing the Opinion Holders in Encolanche p100kw

Pronouns	Chemistry		Language Studies	
	Raw	Normal	Raw	Normal
We	18	32	25	30
Our	2	4	12	14
Us	0	0	3	4
Total	**20**	**36**	**40**	**48**

(19) In our view, the difference in perspectives may result from the method by which the print exposure measures are operationalized as a checklist in which participants are asked to recognize authors' names (and magazine titles). (LangStu #02)

(20) We believe this is due to papain cutting mAbCD3 (OKT3) at either end of an asparagine residue, leading to two FabCD3 species. (Chem #02)

Within the provided examples, the deliberate use of we and our serves specific discourse functions, expressing the author's opinion and stance. These pronouns convey a collaborative and inclusive perspective, suggesting that the author shares their viewpoint with co-authors or the

broader academic community. The phrase "In our view" underscores this shared perspective, indicating joint ownership of an opinion regarding differences in perspectives on print exposure measures. Similarly, "We believe" reflects a collective belief held by the authors concerning a specific phenomenon related to papain cutting mAbCD3. Overall, these instances of using we and our align with the described discourse functions, allowing authors to express opinions while maintaining humility and openness to alternative viewpoints.

The Authors as the Cautious Claim-Makers

First-person pronouns serve as the most prominent and explicit markers of authorial presence, signaling the author's visibility and their willingness to assume responsibility for research roles, including claims and actions (Hyland, 2002). According to Wang and Zeng (2021), claims—such as the interpretation of findings—tend to be more subjective. It is crucial to distinguish between results (which arise from experiments and are somewhat self-evident) and claims. The deliberate use of words like hypothesize and suggest underscores the authors' powerful role in promoting their distinctive contributions and highlighting the source of epistemic commentary. Additionally, phrases like "we find," "we introduce," "I affirm," "I suggest," "my contention," "my claim," and "my point" exemplify how authors deftly navigate the presentation of ideas and claims. Interestingly, in hard disciplines (as reflected in Table 10), authors express caution when assuming the role of claim-makers. Tang and John's (1999) research on undergraduate essays aligns with this pattern, suggesting that authors in these disciplines use fewer first-person pronouns, possibly due to insecurity about the validity of their claims and their perceived position on the academic ladder.

Table 15. Frequency of First-Person Pronouns Expressing the Cautious Claim-Makers in Encolanche p100kw

Pronouns	Chemistry		Language Studies	
	Raw	Normal	Raw	Normal
We	10	18	30	36
Our	1	2	10	11
Us	0	0	2	2
Total	**11**	**20**	**42**	**49**

(21) Reverse engineering from studies of learning in the wild, we introduce a pedagogical approach termed 'rewilding' for its emphasis on designing supportive conditions for goal-directed interaction in spaces outside of classrooms. (LangStu #09)

(22) Our studies suggest that amido/imido-surface chemistry generally improves MXene resistance against hydrolysis and shows that surface engineering is a viable strategy toward synthesis of functional MXenes with enhanced stability. (Chem #01)

(23) *Nilai konduktivitas dari sampel Na2FeSiO4 yang telah berhasil kami peroleh dalam penelitian sebelumnya masih berpeluang untuk ditingkatkan.* (The electrical conductivity value of the Na2FeSiO4 sample we obtained in our previous research still has the potential for improvement.) (Kimia #07)

In example (21), the intentional use of we accentuates a collective action taken by the authors in introducing a novel pedagogical approach. This linguistic choice positions the authors as prudent claim-makers, presenting the introduction of the term 'rewilding' as a collaborative initiative. The intention behind this approach is to mitigate potential confrontations and infuse a collaborative tone into the overall claim. Similarly, in (22), the employment of our attributes the studies and suggestions to the combined efforts of the authors. This deliberate choice serves to de-emphasize individual authorship, portraying the authors as cautious claim-makers who suggest findings without presenting them as definitive truths. The inclusive use of our effectively distributes responsibility, fostering a collaborative atmosphere around the presented conclusions. Examples (11) and (23) illustrate how authors openly acknowledge the success they have previously achieved, but they also add that what they have accomplished is not yet perfect because it can still be improved. Additionally, they demonstrate an optimistic attitude toward achieving better results.

This strategic use of inclusive pronouns aligns with established writing strategies aimed at minimizing potential threats to the audience's face. By spreading responsibility across the discourse community, downplaying individual authorship, and adopting a collaborative tone, the authors make their claims less confrontational and more open to consideration. This approach resonates with the idea that inclusive pronouns are effective tools for low-risk, discrete instances of textual authorial intervention, as discussed by Harwood (2005).

The Authors as the Fully-Committed Claim-Makers

As highlighted by Hyland (2001), this function explicitly emphasizes the writer's distinctive contribution and unwavering commitment to their standpoint. This usage implies a conscious strategy to actively manage the readers' awareness of the writer's role, signifying their intentional positioning within the academic community and the pursuit of acknowledgment for that stance. In this study, the pronouns expressing the fully-committed claim-maker are found to be high in hard disciplines. Indeed, as stated before, authors in hard disciplines use fewer first-person pronouns in making claims to avoid their most powerful function, possibly due to the insecurity about the validity of their claims. However, in this case, they use more pronouns because the pronouns are exclusive. Exclusive construction is used because the authors take personal responsibility for their claims. This approach makes the claims sound more neutral and objective than asserting an opinion or making a cautious claim. It protects them; if there's a critique, they can say that they are only reporting what they heard instead of reporting their opinions. Therefore, as shown in Table 12 below, this role is mostly found in the sub-corpus of chemistry in Encolanche.

Table 16. Frequency of First-Person Pronouns Expressing the Fully-Committed Claim-Makers in Encolanche p100kw

Pronouns	Chemistry		Language Studies	
	Raw	Normal	Raw	Normal
We	35	62	33	39
Our	8	14	17	20
Us	1	2	0	0
Total	**44**	**78**	**50**	**59**

(24) Our analysis has illustrated the individualized methods that the focal learner himself had developed in order to use and learn the language of his new home country. (LangStu #08)

(25) We have demonstrated that the IROP of biomass-derived five-membered thionolactones (TnBL, α-MeTnBL, β-MeTnBL) is an effective and robust strategy… (Chem #10)

In example (24), the pronoun our indicates collective ownership of the analysis or research. It suggests that the insights and conclusions drawn from the analysis belong to the entire group of authors rather than an individual. This usage aligns with the idea discussed in the introduction, where the intentional use of inclusive pronouns contributes to a collaborative and shared presentation of ideas. Similarly, in (25), the use of we signifies a collective effort by the researchers to demonstrate the effectiveness of the IROP strategy. It emphasizes that the research outcomes presented are a result of the collaborative work of the authors. The inclusive we reflects shared involvement in the experimental process and the subsequent findings. Overall, the strategic use of first-person plural pronouns in these examples aligns with the notion discussed in the introduction, indicating a collective authorial presence and emphasizing a shared commitment to the presented ideas or findings.

CONCLUSION

In the analysis of 40 RAs, it was found that the predominant English pronoun used was the exclusive we. This finding aligns with prior studies (Kuo, 1999; Hyland, 2001; Martín, 2003; Rozanatunnisa & Hardjanto, 2022), which have noted a prevalence of first-person plurals. However, the results from this study also highlight differences between the disciplines of chemistry and language studies regarding the expression of inclusivity and discourse functions. Interestingly, in the Indonesian corpus, only very few first-person plural pronouns were found, and the distinction between the inclusive *kita* and the exclusive *kami* proved to be insignificant.

Overall, first-person pronouns are more abundant in language studies. This reflects a trend in soft disciplines, where authors use first-person pronouns to establish a more overt, authoritative, and individualistic authorial identity, contrary to hard disciplines that minimize visibility. Notably, this contradicts findings in computer science RAs, where first-person pronoun frequency surpasses that in literature by 2.5 times, suggesting discipline-specific variations in purpose, practices, and norms. The applied taxonomy is tailored to the examined data and may not apply universally. While individual preferences may contribute to intradisciplinary variations, this study did not include interviews with RA writers.

The study identifies the author as the experiment conductor as the most dominant function, particularly in hard disciplines like chemistry, emphasizing detailed methodology. However, due to time constraints, a section-wise analysis of first-person pronoun distribution in each section of the articles could not be conducted. Regarding authorial references in the Indonesian language, further research is necessary for a clearer understanding. Future studies should address this complexity, going beyond the question of whether specific first-person pronouns are permissible in academic writing. It involves determining which functions writers should employ, when, and why. Recognizing diverse rhetorical options and illustrating how distinct fields employ first-person pronouns is crucial for understanding authorial influence in academic discourse. Additionally, exploring articles with single authors could offer further insights, considering the limitations of this study with multiple authors.

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